R E P O R T R E S U M E S

ED 015 169 SP 001 405

THE TEACHER'S ROLE IN CLASSES USING SELF-STUDY MATERIALS.

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PUB DATE 6 MAY 67

EDRS PRICE MF-$0.25 HC-$0.20 3P.

DESCRIPTORS- CULTURAL DISADVANTAGEMENT, ELEMENTARY SCHOOL STUDENTS, ELEMENTARY SCHOOL TEACHERS, *GEOMETRY, MOTIVATION, *PROGRAMED INSTRUCTION, PROGRAMED MATERIALS, PROGRAMED TUTORING, READING IMPROVEMENT, *READING INSTRUCTION, REINFORCERS, SECONDARY SCHOOL STUDENTS, SECONDARY SCHOOL TEACHERS, TEACHER AIDES, *TEACHER ROLE, *TEACHING TECHNIQUES, TUTORING,

2 STUDIES DESIGNED TO EXPLORE THE ROLE OF THE TEACHER IN THE CLASSROOM ARE DESCRIBED. THE FIRST STUDY USED ABOUT 5 HOURS OF PROGRAMED HIGH SCHOOL GEOMETRY MATERIALS. IT WAS HYPOTHESIZED THAT EFFECTIVENESS OF THESE MATERIALS WOULD BE INCREASED IF THE TEACHER ACTIVELY AUGMENTED INSTRUCTION THROUGH REPHRASING DIFFICULT ITEMS, ADDING EXAMPLES, WORKING PROBLEMS WITH THE STUDENT AND BRANCHING THE STUDENT TO DIFFERENT PARTS OF THE PROGRAM. COMPARISON OF THIS ACTIVE TEACHER ROLE, WITH A MERELY MONITORIAL ONE, REVEALED NO DIFFERENCES AMONG TREATMENT GROUPS ON A POSTTEST. RESULTS LEAD TO THE CONJECTURE THAT THE TEACHER SHOULD PROGRAM HIS OWN BEHAVIOR AS CAREFULLY AS THE INSTRUCTIONAL MATERIAL IS PROGRAMMED, IN ORDER TO BE ABLE TO AUGMENT THE MATERIAL. THE SECOND STUDY IS AN ATTEMPT TO APPLY EMPIRICAL TRIAL-AND-REVISION PROCEDURES TO IMPROVE CLASSROOM INSTRUCTION FOR FIRST-GRADE MEXICAN-AMERICAN CHILDREN. CLASSROOM OBSERVATION OF READING INSTRUCTION IN 2 ELEMENTARY SCHOOLS COUPLED WITH A TESTING PROGRAM REVEALED PARTICULAR DEFICIENCY IN USE OF SOME PARTICULARLY CRITICAL ADJECTIVES AND PREPOSITIONS. THE PLAN IS TO DEVELOP A DECISION FLOW CHART FROM USEFUL TECHNIQUES TO HELP THE TEACHER SELECT MATERIALS AND METHODS FOR DIFFERENT CHILDREN. USE OF OTHER CHILDREN AND PARENTS AS TUTORS, AND TANGIBLE REINFORCERS AS WELL AS MANY TYPES OF INSTRUCTIONAL MATERIALS ARE UNDER CONSIDERATION. PAPER PRESENTED AT THE WESTERN PSYCHOLOGICAL ASSOC. CONVENTION, SAN FRANCISCO, CALIF. MAY 6, 1967. (AF)

ED015169

SP-2704/000/00

SP 001405

THE TEACHER'S ROLE IN CLASSES USING SELF-STUDY MATERIALS*

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I would like to describe two System Development Corporation studies, one completed and the other in progress, designed to explore the role of the teacher in the classroom. In these studies an attempt is made to anticipate the day when the teacher will not be the primary source of information, but will function more as a classroom manager with the bulk of the information presented by programmed materials, films, or even computer-based instruction. In such a classroom, which may not be far in the future, the teacher might be expected to diagnose individual learning problems and to draw from a large variety of school resources to prescribe the best teaching modes and sequences for each student.

The first study, conducted in two phases, used approximately five hours worth of programmed materials in high school geometry. We hypothesized that the effectiveness of these materials would be increased if the teacher actively augmented the instruction by rephrasing difficult program items, adding examples, working through the program problems with the student, and branching the student to different parts of the program. We compared this active teacher role with a passive role in which the teacher merely monitored the instruction and maintained discipline.

In the first phase of this study, the materials were presented in our CLASS laboratory, which had a computer connected to 20 student terminals. Each student proceeded at his own rate, responding to materials sequenced by the computer and receiving feedback from the computer. We gave the teacher special computer-generated displays of pupil performance to help him diagnose individual learning problems so that he could take more effective remedial actions.

The second phase of the study was conducted in four operating classrooms, using programmed booklets rather than computer-aided instruction. In this phase we gave the teacher more freedom to add new information beyond that contained in the program.

In both phases of the study we found no differences among the treatment groups on a post-training criterion test. Evidently the teachers were completely unable to augment the programmed instruction in any effective way.

We had a number of conjectures about the reasons for our findings in this first study. We estimate, for example, that in a 50-minute class session the teacher can spend only one to one and one-half minutes of his own time per student trying to remedy individual learning problems. This is not very much time to make a dramatic impact on learning. It would appear that the teacher needs to do a great deal of pre-planning, deciding what to do when different contingencies arise, if he is to use his limited time effectively.

We also felt that we had not given the teachers control over the most potent classroom variables. For all practical purposes, the teacher was limited to minor modifications of the program itself, such as branching students within the program

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*Presented at the Western Psychological Association Convention in San Francisco, California, May 6, 1967.

or rephrasing segments of the program. The limited time of the teacher probably means that he should work at a more macroscopic level with variables such as the basic classroom organization, the use of social reinforcers, and the selection of different instructional modes for different students, such as small group discussion, individualized programmed instruction, whole class film instruction, and so on.

Finally, we concluded that the instructional material itself, such as the programmed booklets, should not be introduced in final form in the ongoing classroom but should be subjected to continuing trials and revisions in the operating classroom environment.

All these points can be summarized by saying that the teacher should probably program his own behavior just as carefully as the instructional material itself is programmed. He should know in advance that, if a student performs in a certain way on a certain task, that student should be assigned to a certain mode of instruction, using certain materials and certain reinforcers.

This is somewhat the approach that two of our project members, Ralph Melaragno and Jerry Newmark are taking in a current project supported by the Fund for the Advancement of Education. This study is an attempt to apply empirical trial-and-revision procedures to improve classroom instruction for first-grade Mexican-American children. Our people are meeting regularly with teachers in two San Fernando elementary schools, attempting to identify critical classroom variables, and to develop programmed strategies that the teachers can use to guide their daily reading instruction.

The first step of the study involved classroom observation of the regular reading instruction, to select a reading instructional task of particular difficulty to Mexican-American children. For six weeks, almost daily observations were made in four first-grade classes. For comparison purposes, two adjacent Anglo schools were also observed.

Two skill areas were felt to be of particular difficulty to the Mexican-American children. Listening comprehension was one, and the other was the use of some adjectives and prepositions that are particularly critical in reading instruction, such as over, next to, first, and below. A testing program was conducted to determine which of these skill areas more sharply distinguished the Mexican-American children from the Anglo children, and it was found to be the use of the adjectives and prepositions. Knowledge of 40 prepositions and adjectives was measured by a test prepared by the investigators. By the use of pictorial options and tape-recorded instructions, it was found that the average first-grade Mexican-American child is deficient in his knowledge of about half of these words.

At the present time, Ralph Melaragno and Jerry Newmark are working with several teachers, trying out different instructional materials and methods for pupils of different ability levels. The teachers use these different techniques, and performance is evaluated by pre- and post-training tests. The plan is to make initial decisions about what techniques are useful for what tasks and what types of pupils, and then to develop a decision flow chart that will help the teacher select the materials and methods for different children during the ongoing classroom instruction.

Since the study is still in progress, I can only indicate some of the methods that appear promising. Both first grade and fifth grade Mexican-American children have been used, with some success, to tutor the first graders having difficulty. In the next few weeks, an attempt will be made to interest parents of the children in working as tutors for individuals or small groups. This may bring benefits beyond the effects of the tutoring itself. Tangible reinforcers, such as candy or small toys, also appear to have real potential.

Several types of instructional material have been used, including pictures, tape recordings, toys and other objects, and games of various sorts.

Our hope is to develop an applied research methodology that can be adapted by the school people themselves, for the improvement of classroom instruction in any school. The general sequence of activities in such an improvement process must include the identification of major problem areas, the definition of precise behavioral objectives, the development and evaluation of alternative instructional and organizational approaches, and the preparation of a systematic plan for matching the resources to the student needs in the daily classroom instruction.

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